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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,397	01/10/2007	Takatoshi Seto	293774US0PCT	2538
22850	7590	09/22/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER KOSLOW, CAROL M	
			ART UNIT	PAPER NUMBER
			1793	
			NOTIFICATION DATE	DELIVERY MODE
			09/22/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,397	<b>Applicant(s)</b> SETO ET AL.	
	<b>Examiner</b> C. Melissa Koslow	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-11 and 14-17 is/are rejected.
- 7) ☒ Claim(s) 4, 12, 13 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/17/06, 11/3/06</u> . | 6) <input type="checkbox"/> Other: ____.  |

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The Japanese, Korean and German language references cited in the information disclosure statements have been considered with respect to the supplied English abstracts, English translation and/or relevancy given on the search report.

Applicants cited JP 2004-501512; JP 2004-2512, JP 2003-313549, JP 2003-261868 and JP 2002-509978 in the information disclosure statement of 17 October 2006 and in the information disclosure statement of 3 November 2006. The duplicate citations in the information disclosure statement of 3 November 2006 have a line drawn through them.

The drawings are objected to because figures 4-13 include handwritten amendments. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

The variable “b” range for formula 1 in claim 1 and in claim 2 is not explicitly taught in the specification. The specification teaches for this formula the lower limit is less than or equal to 0. There is no disclosure that “b” in formula 1 can be greater than 0. The specification does not teach the ranges of  $a_0+b_0+c_0+d_0$  and  $e_0+f_0$  claims in claim 2. The specification teaches the ranges are 1.8-2.2 and 3.6-4.4 respectively. The amount of at least one of Ba, Ca and Sr in claim 2 is not found in the specification. The specification teaches that in formula 2 the amount is 80 mol% or more. The lower limit of “a” of claim 3 is not found in the specification. The specification teaches for formula 2, the lower limit is 0.001, 0.005 and 0.02. The claim range of b in claim 3 is not found in the specification. The taught ranges of b for formula 2 are  $0 < b \leq 0.15$ , 0.01-0.15, 0.03-0.8 and 0.06-0.4. The  $e_2+f_2$  range of claim 4 is not found in the specification. The taught range is 3.6-4.4. It is suggested to either insert the claimed ranges not found in the specification into the specification or to amend the claims so that the claimed ranges correspond with those in the specification to overcome this objection.

The Examiner was unable to find support for the proviso of claims 5-7 in the specification. Applicants can either point out where the proviso is found in the specification or insert it into the specification.

Claims 5-7 are objected to because of the following informalities: They are not in the correct format. The definitions of R1, R2, R3, R4 and % should appear in the body of the claim and not after the period, which signifies the end of the claim. Appropriate correction is required.

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Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

This claim defines the amount of d1 as 0-0.2 which means the amount of c1 is 0.8-1.

Claim 1, from which claim 3 depends teaches the amount of c1 as 0-0.2 which means the amount of d1 is 0.8-1. Thus the amount of d1 claimed in claim 3 is outside the amount claimed in claim 1. Therefore claim 3 is indefinite.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5-11, 14, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,982,045.

This reference teaches a phosphor having the formula  $M_2SiO_4:Eu,Mn$ , where M is at least one of Sr, Ba and Ca. the amount of Eu is about 0.0001-5 mol% (0.00001-0.05) and the amount of Mn is about 0.0001-5 mol% (0.000001-0.05) . The taught alkaline earth silicate host falls within claimed formula 1 and the amounts of europium and manganese overlap the claimed ranges. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). Also see MPEP 2144.05. Since the host crystal falls within that claimed and the amounts of Eu and Mn overlap the claimed ranges, one expect the taught

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phosphor to have an X-ray diffraction pattern that falls within that claimed when the taught amount of Eu is between 0.1 and 5 mol% (0.001-0.05) and the amount of manganese is 0.0001-5 mol% (0.000001-0.05), absent any showing to the contrary. The taught phosphor is used in a white light emitting device which further contains a UV LED, which emits wavelengths in the range of 380-430 nm, as the excitation source for the phosphor. The reference teaches the phosphor is dispersed in a resin and that the taught device is used in a lighting system or in an image display unit. The reference teaches the phosphor is produced by mixing the raw materials for the phosphors and firing the mixture in a reducing atmosphere. The reference suggests the claimed phosphor, devices, method and composition.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,982,045 as applied to claim 8 above, and further in view of U.S. patents 6,850,002; 7026,755 and 7,077,979.

As discussed above, U.S. patent 6,982,045 suggests the claimed device. This patent does not teach the composition of the UV LED used in the device. U.S. patents 6,850,002; 7026,755 and 7,077,979 all teach that at the time of invention GaN based UV LEDs were known and used as the excitation source in phosphor containing light emitting devices. Thus, one of ordinary skill in the art would have found it obvious to use a GaN based UV LED as the UV LED in the device of U.S. patent 6,982,045. The references suggest the claimed device.

Claims 4, 12, 13 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Claim 3 is would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

There is no teaching or suggestion in the cited art of record of phosphors having formulas 2 and 3. There is no teaching or suggestion in the cited art of record of white light emitting or red light emitting phosphors having formula 1, 2 or 3. The phosphor of U.S. patent 6,982,045 emits a yellowish color containing both green and red emissions. For a phosphor to emit white light, it needs to have blue, green and red emissions. Finally, there is no teaching of suggestion in the cited art of record of a red light emitting device comprising one of the claimed phosphors and a light emitter which emits light of 350-430 nm.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/cmk/  
September 19, 2008

/C. Melissa Koslow/  
Primary Examiner  
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